Inside This Issue of JACC

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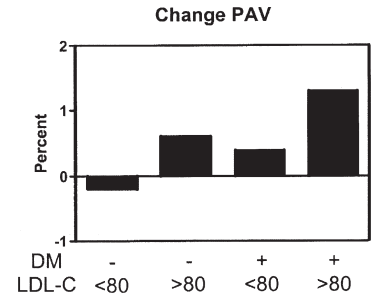

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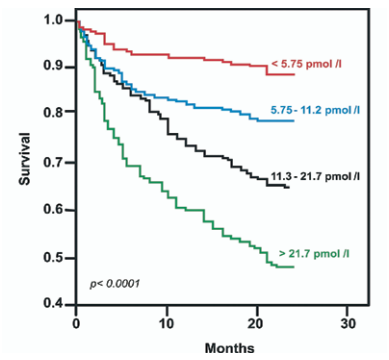

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Viewpoint

Balancing the Risks and Benefits of Chronic Nitrate Use

Organic nitrates remain among the oldest and most commonly used drugs for treating angina and heart failure. However, recent observations suggest that they may provoke endothelial and autonomic dysfunction via the production of reactive oxygen species. On the other hand, nitrates have been demonstrated to have protective effects that mimic those of ischemic preconditioning. Gori and Parker review the current understanding of chronic nitrate use and suggest the need for randomized long-term studies of their safety and efficacy. **See page 251.**

Coronary Artery Disease

IVUS Demonstrates the Effect of Diabetes on Atherosclerosis

Nicholls and colleagues compiled intravascular ultrasound (IVUS) results from over 2,000 subjects enrolled in several large studies that included serial IVUS examinations. Diabetic patients had higher percent atheroma volume (PAV), higher total atheroma volume (TAV), and a smaller lumen. Diabetic patients had more rapid progression of PAV and TAV and were less likely to have a >5% reduction in either measure with intensive low-density lipoprotein cholesterol (LDL-C) lowering. This study quantifies the accelerated progression of atherosclerosis in diabetics. **See pages 255 and 263. See figure.**

Heart Failure

Copeptin Helps to Risk Stratify Patients With Chronic Heart Failure

Copeptin is a fragment of pre–pro-vasopressin, which is more stable in vitro, and thereby more reliably measured, than vasopressin. Neuhold and colleagues measured copeptin levels in almost 800 patients with varying severity of systolic dysfunction and other comorbidities. While New York Heart Association (NYHA) functional class was the most potent predictor of 24-month mortality, copeptin identified which NYHA functional class II and III patients were most likely to die. In NYHA functional class IV, serum sodium was the best stratifier, but copeptin added additional information. Copeptin was a superior risk marker than brain natriuretic peptide or N-terminal pro-B-type natriuretic peptide in this study. **See page 266. See figure.**

Heart Rhythm Disorders

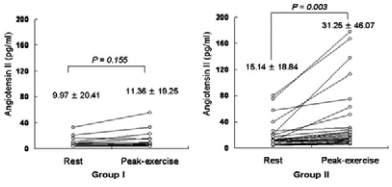
Circumferential PVI With a Cryoballoon

Neumann and colleagues report their experience with a novel double lumen cryoballoon catheter designed for circumferential pulmonary vein isolation (PVI) in over 300 patients with atrial fibrillation (AF). The primary end points of this nonrandomized study were acute isolation rate of the targeted pulmonary vein and recurrence of AF. The secondary end point was procedure related complications. Ablation with the cryoballoon resulted in maintenance of sinus rhythm in 74% of patients with paroxysmal AF and 42% with persistent AF. The most frequent complication was right phrenic nerve palsy. Pulmonary vein isolation with a new cryoballoon technique is feasible, although further studies are needed to refine the risks associated with this technique. **See page 273.**

Cardiac Imaging

DCMR Identifies High Risk Patients with LV Dysfunction

Dall'Armellina and colleagues reviewed the dobutamine cardiovascular magnetic resonance (DCMR) results from 200 patients with ejection fraction (EF) <55% in whom left ventricular (LV) wall motion score index (WMSI) was assessed during intravenous infusion of dobutamine/atropine. All participants were followed for an average of 5 years. In subjects with an EF of 40% to 55%, a DCMR stress-induced change in WMSI added significantly to predicting future cardiac events, but was less useful than simply measuring the EF in those with an EF <40%. In individuals with mild to moderate reductions in EF (40% to 55%), dobutamine-induced increases in WMSI predict cardiac risk better than an assessment of resting LVEF alone. **See page 279.**



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Exercise Hypertension

Exaggerated BP Response to Exercise Associated with Increased Angiotensin II Release

Shim and colleagues hypothesized that an exaggerated blood pressure (BP) response to exercise may be due to differences in the release of neurohormones during exercise. Otherwise healthy and normotensive men and women with an exaggerated BP response to exercise, defined as an increase from baseline systolic BP ≥60 mm Hg in men or ≥50 mm Hg in women, were compared with subjects with smaller increases in BP. Angiotensin II levels at rest and at peak exercise and the magnitude of the increase with exercise were significantly higher in the exaggerated BP response group. There were no differences in several other neurohormones. Exaggerated BP responses to exercise appear to be caused by higher levels of angiotensin II. **See page 287. See figure.**

Pediatric Cardiovascular Disease

Childhood Levels of Apolipoproteins B and A-I Predict Future Atherosclerosis

Juonala and colleagues reviewed the results of several cardiac risk factors obtained when subjects were 3 to18 years old with the results of carotid artery intima-media thickness (IMT) and brachial artery flow-mediated dilation (FMD) 20 years later. In subjects age 12 to 18 years at baseline, apolipoprotein (apo)B, apoA-I, and the apoB/apoA-I ratio correlated with adult IMT. The same correlations were found for subjects ages 3 to 18 years at baseline for FMD. The apoB/apoA-I ratio had better predictive utility than the low-density lipoprotein/high-density lipoprotein ratio and than any individual measurement. Measuring apoB and apoA-I in children and adolescents may identify patients at high risk of atherosclerosis. **See pages 293 and 300.**